signal DV on the side of the decoder, and the computing unit 71 outputs its power difference.

Specifically, on each side, average power for 100 milliseconds that have passed is measured, for example, and its difference is output. A positive value is output if the power on the side of the encoder is larger, and a negative value is output if not.

Whenever the output of the computing unit 71 intersects zero, the zero-crossing counter 72 accumulates the intersected times. However, a threshold CL is provided in the vicinity of zero in input, and the unit 71 stably works while disregarding a small input change in amplitude below a given value such as a slight noise.

The zero-crossing counter 72 can output a control signal C11 that corresponds to the value (i.e., accumulated times) of the counter at intervals of, for example, one second, and can dynamically change a higher threshold TH2, which corresponds to the higher threshold TH1, in accordance with the control signal C11. After the control signal C11 is output, the counter value of the zero-crossing counter 72 is initialized to zero.

Accordingly, the control signal C11 by which the higher threshold TH2 becomes small by one packet is output if the counter value of the zero-crossing counter 72 is larger than the accumulated counter value of the pre-measuring time (i.e., one second ago), whereas the control signal C11 by which the higher threshold TH2 becomes large

by one packet is output if smaller.

(D-2) Effect of the fourth embodiment

According to this embodiment, the same effect as that of the first embodiment can be obtained.

In addition, in this embodiment, a fixed delay can be dynamically changed in accordance with the analytic result of a conversation pattern that corresponds to the alternation time interval of a conversation.

The fixed delay is reduced in a conversation pattern that gives an unpleasant feeling to users, and, contrarily, the fixed delay is extended in a state where, for example, voice guidance is flowing. This can restrain the occurrence of a voice interruption caused by a buffer shortage.

(E) Fifth Embodiment

Only the difference between this embodiment and the first embodiment will be described hereinafter.

(E-1) Structure and operation of the fifth embodiment

The whole structure of a voice communications system 80 of this embodiment is shown in Fig. 12, and the internal structure of a buffer device 86 is shown in Fig. 10.

In Fig. 12, the functions of each component and each signal, to which the same reference character as that of Fig. 1 is given, are the same as those of Fig. 1. Therefore, in Fig. 12, the difference between this embodiment and the first embodiment is limited to a part that relates to the buffer device 86, the complementary-packet inserting device 19A, and the voice presence/absence judging device 21A.

As shown in Fig. 12, the voice presence/absence judging device 21A is connected to the complementary-packet inserting device 19A, and a scanning signal SC3 is supplied from the buffer device 86 to the complementary-packet inserting device 19B, and the scanning signal SC3 and a judgment result DC3 are exchanged between the voice presence/absence judging device 21A and the complementary-packet inserting device 19A.

Likewise, in Fig. 13, the functions of each component and each signal, to which the same reference character as that of Fig. 2 is given, are the same as those of Fig. 2.

Therefore, in Fig. 13, the difference between this embodiment and the first embodiment is limited to a part that relates to a lower threshold TL1, a queue length detector 82, and a scanning reader 83.

Only the components and signals that relate to the lower threshold TL1, which characterize this embodiment, are shown in Fig. 13. Since the components and signals that relate to the higher threshold TH are the same as those of the first embodiment, they are not shown in the figure.

The difference between this embodiment and the first embodiment results from the fact that the lower threshold TL1 is set at the higher position than the top position in this embodiment.

As mentioned above, usually, the complementary packet PP is inserted to continue to supply a voice packet to the voice decoder 17 at intervals of the decoding unit time